

## **REMARKS**

### **I. Introduction**

Claims 23-28 and 31-45 are pending in the present application. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the pending claims is respectfully requested.

### **II. Rejection of Claims 27 and 39 under 35 U.S.C. § 112, second paragraph**

Claims 27 and 39 were rejected under 35 U.S.C. § 112, second paragraph as indefinite. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Claim 27 has been amended to clarify that the “at least one structure” is the previously recited “at least one guide structure”. Claim 39 has been amended to clarify that “the supplied gas” and not “at least one of the supplied gas” was the intended language.

Applicants respectfully request the withdrawal of this rejection for at least the foregoing reasons.

### **III. Rejection of Claims 23-31, 33, 34, 37-39, 44, and 45 under 35 U.S.C. § 102(b)**

Claims 23-31, 33, 34, 37-39, 44, and 45 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,890,294 to Nishimae et al. (“Nishimae et al.”). Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

To anticipate a claim under § 102(b), a single prior art reference must identically disclose each and every claim element. See Lindeman Machinefabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any of the claimed elements is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). As stated in the Manual of Patent Examining Procedures (MPEP) § 706.02: “for anticipation under 35 U.S.C. 102, the

reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present.”

Independent device claim 23 has been amended to incorporate the limitations of now-canceled claims 29 and 30. Amended claim 23 recites:

at least one guide structure, **the at least one guide structure including at least one hole, wherein a plasma region includes at least one of the hole and an area adjacent to the hole;** and

a microwave generator, the microwave generator launching electromagnetic microwaves into the at least one guide structure to produce the plasma, **the plasma being produced in the plasma region.**

Independent method claim 37 has been similarly amended to recite:

providing a microwave generator, the microwave generator coupled to a launch structure, the launch structure coupled to at least one guide structure, **the at least one guide structure including at least one hole, wherein a plasma region includes at least one of the hole and an area adjacent to the hole;**

launching microwaves through the launch structure into the at least one guide structure; and

supplying a gas, **wherein the microwaves and the supplied gas produce a plasma in the at least one plasma region.**

Applicants respectfully note that nothing in the Nishimae et al. reference teaches, or even suggests, that the guide structure includes a hole and that the plasma is produced in a plasma region, which includes either the hole or an area adjacent to the hole. Nishimae et al. at col. 22, lines 58-68, disclose using plural holes instead of a lengthy slit in the microwave coupling window, but the plasma generation in the Nishimae et al. reference does not occur at or adjacent to the microwave coupling window. Instead, Nishimae et al. teaches that microwaves are distributed throughout ridges in a cavity wall following the microwave coupling window to generate plasma in a discharge space located between the ridges—not near the plural holes. For at least these reasons, claims 23 and 37, as well as their dependent claims 24-28, 31, 33, 34, 38, 39, 44 and 45, are allowable over the Nishimae et al. reference, and Applicants respectfully request the withdrawal of this rejection.

**IV. Rejection of Claims 23, 29-31, 37-39, 42, and 45 under 35 U.S.C. § 102(e)**

Claims 23, 29-31, 37-39, 42, and 45 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,224,836 to Moisan et al. (“Moisan et al.”). Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

As state above, independent device claim 23 and independent method claim 37 have been amended. Applicants respectfully note that nothing in the Moisan et al. reference teaches, or even suggests, that the guide structure includes a hole and that the plasma is produced in a plasma region, which includes either the hole or an area adjacent to the hole. Unlike the present application, Moisan et al. at col. 4, lines 4-14, and col. 5, lines 4-10, 37-40, disclose using an additional structure, a discharge tube, made of a dielectric material passing through orifices in the waveguide and concentrating microwave radiation from the waveguide onto the discharge tube to generate plasma. The use of microwaves in the guide structure does not generate the plasma, but the microwaves passed into the discharge tube excite the gas and generate the plasma. For at least these reasons, claims 23 and 37, as well as their dependent claims 31, 38, 39, 42, and 45, are allowable over the Moisan et al. reference, and Applicants respectfully request the withdrawal of this rejection.

**V. Rejection of Claims 32, 35, and 40-43 under 35 U.S.C. § 103(a)**

Claims 32, 35, and 40-43 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 4,890,294 to Nishimae et al. (“Nishimae et al.”). Applicants respectfully submit that this rejection should be withdrawn for at least the following reason.

Applicants note that claims 32 and 35 depend from claim 23, and claims 40-43 depend from claim 37. Accordingly, claims 32, 35, and 40-43 are allowable over Nishimae et al. for the same reasons discussed above in connection with the independent claims 23 and 37. Applicants thus respectfully request the withdrawal of this rejection.

**CONCLUSION**

Applicants respectfully submit that all pending claims of the present application are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

The Office is authorized to charge any fees associated with this Amendment to Kenyon & Kenyon Deposit Account No. 11-0600.

Respectfully submitted,

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